

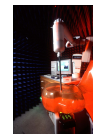


# PCTEST ENGINEERING LABORATORY, INC.

6660-B Dobbin Road, Columbia, MD 21045 USA

Tel. 410.290.6652 / Fax 410.290.6554

<http://www.pctestlab.com>



## CERTIFICATE OF COMPLIANCE FCC Part 22 & 24 Class II Permissive Change

**Applicant Name:**

Samsung Electronics, Co. Ltd.  
18600 Broadwick St.  
Rancho Dominguez, CA 90220  
United States

**Date of Testing:**

April 22, 2008

**Test Site/Location:**

PCTEST Lab., Columbia, MD, USA

**Test Report Serial No.:**

0804170509.A3L

**FCC ID:** A3LSCHR210A

**APPLICANT:** SAMSUNG ELECTRONICS, CO. LTD.

**Application Type:** Class II Permissive Change

**FCC Classification:** PCS Licensed Transmitter Held to Ear (PCE)

**FCC Rule Part(s):** §2; §22(H), §24(E)

**EUT Type:** Cellular/AWS/PCS CDMA Phone with Bluetooth

**Model(s):** SCH-R210

**Tx Frequency Range:** 824.70 - 848.31MHz (Cell. CDMA) / 1851.25 - 1908.75MHz (PCS CDMA)

**Max. RF Output Power:** 0.223 W ERP Cell. CDMA (23.49 dBm)  
0.372 W EIRP PCS CDMA (25.71 dBm)

**Emission Designator(s):** 1M27F9W (CDMA) / 1M27F9W (PCS)

**Test Device Serial No.:** *identical prototype* [S/N: AF-025-B]

**Class II Permissive Change:** See change document.

**Original Grant Date:** February 22, 2008

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

**Grant Conditions:** Power output listed is ERP for Part 22 and EIRP for Part 24.

PCTEST certifies that no party to this application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862.

  
Randy Ortanez  
President



|                                    |                                                                                     |                                                                       |                                                                                       |                                 |
|------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHR210A                |  | FCC Pt. 22/24 CDMA MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0804170509.A3L | Test Dates:<br>April 22, 2008                                                       | EUT Type:<br>Cellular/AWS/PCS CDMA Phone with Bluetooth               |                                                                                       | Page 1 of 19                    |

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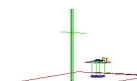
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# MEASUREMENT REPORT

## FCC Part 22 & 24



### §2.1033 General Information

**APPLICANT:** Samsung Electronics, Co. Ltd.  
**APPLICANT ADDRESS:** 18600 Broadwick St.  
 Rancho Dominguez, CA 90220  
**TEST SITE:** PCTEST ENGINEERING LABORATORY, INC.  
**TEST SITE ADDRESS:** 6660-B Dobbin Road, Columbia, MD 21045 USA  
**FCC RULE PART(S):** §2; §22(H), §24(E)  
**BASE MODEL:** SCH-R210  
**FCC ID:** A3LSCHR210A  
**FCC CLASSIFICATION:** PCS Licensed Transmitter Held to Ear (PCE)  
**EMISSION DESIGNATOR(S):** 1M27F9W (CDMA) / 1M27F9W (PCS)  
**MODE:** CDMA  
**FREQUENCY TOLERANCE:**  $\pm 0.00025\%$  (2.5 ppm)  
**Test Device Serial No.:** AF-025-B ☐ Production ☒ Pre-Production ☐ Engineering  
**DATE(S) OF TEST:** April 22, 2008  
**TEST REPORT S/N:** 0804170509.A3L

### Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab. located in Columbia, MD 21045, U.S.A.



- PCTEST facility is an FCC registered (PCTEST Reg. No. 90864) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules and Industry Canada (IC-2451).
- PCTEST Lab is accredited to ISO 17025 by U.S. National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP Lab code: 100431-0) in EMC, FCC and Telecommunications.
- PCTEST Lab is accredited to ISO 17025-2005 by the American Association for Laboratory Accreditation (A2LA) in Specific Absorption Rate (SAR) testing, Hearing Aid Compatibility (HAC) testing, CTIA Test Plans, and wireless testing for FCC and Industry Canada Rules.
- PCTEST Lab is a recognized U.S. Conformity Assessment Body (CAB) in EMC and R&TTE (n.b. 0982) under the U.S.-EU Mutual Recognition Agreement (MRA).
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC Guide 65 by the American National Standards Institute (ANSI) in all scopes of FCC Rules and Industry Canada Standards (RSS).
- PCTEST facility is an IC registered (IC-2451) test laboratory with the site description on file at Industry Canada.
- PCTEST is a CTIA Authorized Test Laboratory (CATL) for AMPS, CDMA, and EvDO wireless devices and for Over-the-Air (OTA) Antenna Performance testing for AMPS, CDMA, GSM, GPRS, EGPRS, UMTS (W-CDMA), CDMA 1xEVDO, and CDMA 1xRTT.

|                                    |                                                                                     |                                                                       |                                                                                       |                                 |
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| Test Report S/N:<br>0804170509.A3L | Test Dates:<br>April 22, 2008                                                       | EUT Type:<br>Cellular/AWS/PCS CDMA Phone with Bluetooth               | Page 3 of 19                                                                          |                                 |

## 1.0 INTRODUCTION

### 1.1 Scope

Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission.

### 1.2 Testing Facility

The map below shows the location of the PCTEST LABORATORY, its proximity to the FCC Laboratory, the Columbia vicinity area, the Baltimore-Washington Intern't'l (BWI) airport, the city of Baltimore and the Washington, DC area. (see Figure 1-1).

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility in New Concept Business Park, Guilford Industrial Park, Columbia, Maryland. The site address is 6660-B Dobbin Road, Columbia, MD 21045. The test site is one of the highest points in the Columbia area with an elevation of 390 feet above mean sea level. The site coordinates are 39° 11'15" N latitude and 76° 49'38" W longitude. The facility is 1.5 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. There are no FM or TV transmitters within 15 miles of the site. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2003 on January 27, 2006 and Industry Canada.

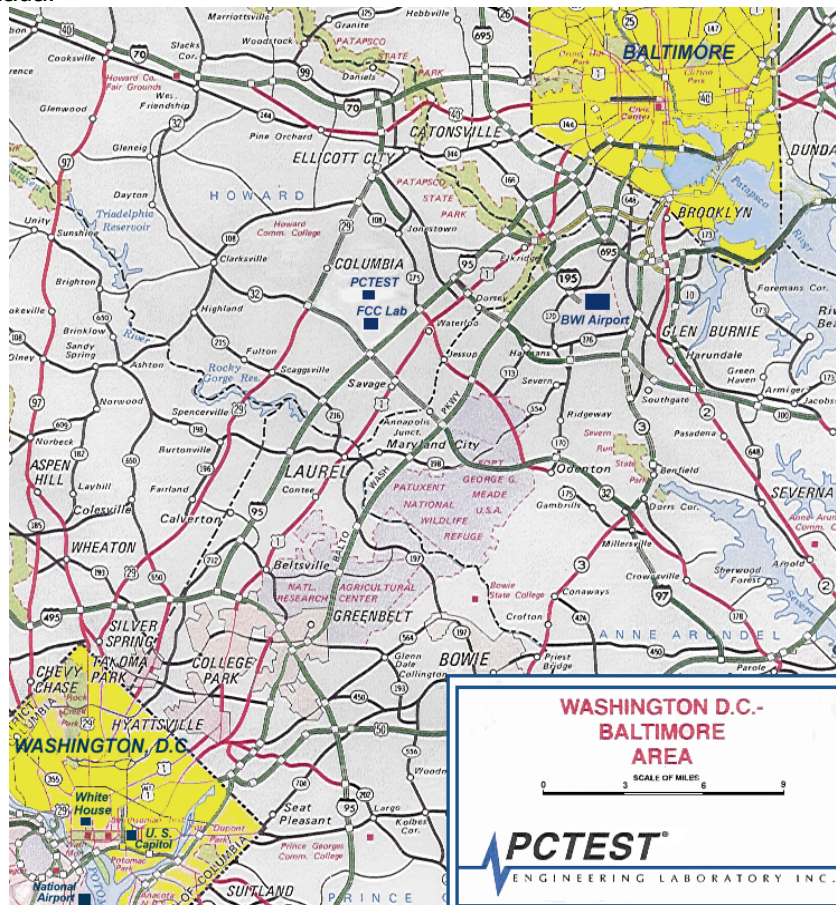


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

|                                    |                                               |                                                                       |                |                                 |
|------------------------------------|-----------------------------------------------|-----------------------------------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSCHR210A                | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | FCC Pt. 22/24 CDMA MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) | <b>SAMSUNG</b> | Reviewed by:<br>Quality Manager |
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## 2.0 PRODUCT INFORMATION

### 2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Cellular/AWS/PCS CDMA Phone with Bluetooth FCC ID: A3LSCHR210A**. The EUT consisted of the following component(s):

| Trade Name / Base Model   | FCC ID      | Description                                |
|---------------------------|-------------|--------------------------------------------|
| Samsung / Model: SCH-R210 | A3LSCHR210A | Cellular/AWS/PCS CDMA Phone with Bluetooth |

Table 2-1. EUT Equipment Description

### 2.2 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

### 2.3 Labeling Requirements

Per 2.925

The FCC identifier shall be permanently affixed to the equipment and shall be readily visible to the purchaser at the time of purchase.

Per 15.19; Docket 95-19

In addition to this requirement, a device subject to certification shall be labeled as follows:

*This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.*

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the trade name and FCC ID must be displayed on the device per Section 15.19(b)(2).

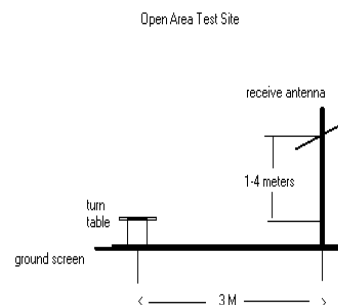
Please see attachment for FCC ID label and label location.

|                                    |                                                                                     |                                                                       |                                                                                       |                                 |
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| Test Report S/N:<br>0804170509.A3L | Test Dates:<br>April 22, 2008                                                       | EUT Type:<br>Cellular/AWS/PCS CDMA Phone with Bluetooth               |                                                                                       | Page 5 of 19                    |

## 3.0 DESCRIPTION OF TESTS

### 3.1 Measurement Procedure

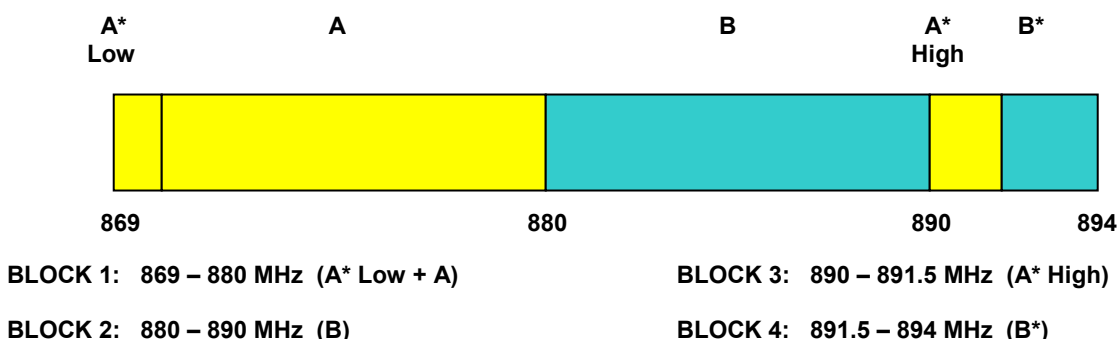
The radiated spurious measurements were made outdoors at a 3-meter test range (see Figure 3-1). The equipment under test is placed on a wooden turntable 3-meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic antenna are taken into consideration.



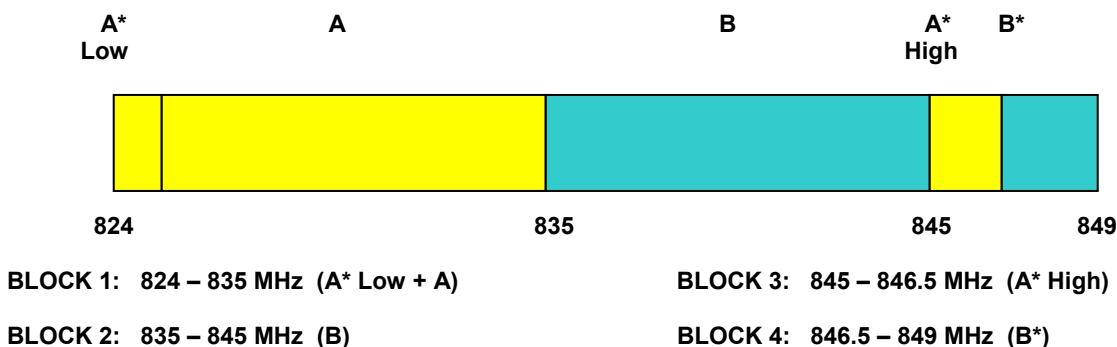
**Figure 3-1. Diagram of 3-meter outdoor test range**

Deviation from Measurement Procedure.....None

### 3.2 Cellular - Base Frequency Blocks

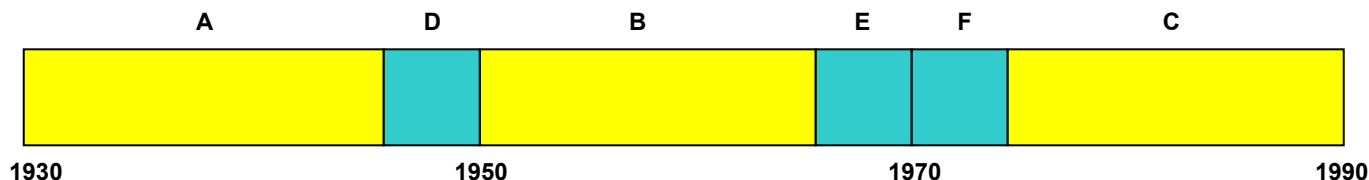


### 3.3 Cellular - Mobile Frequency Blocks



|                                    |                                               |                                                                       |                |                                 |
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### 3.4 PCS - Base Frequency Blocks



BLOCK 1: 1930 – 1945 MHz (A)

BLOCK 4: 1965 – 1970 MHz (E)

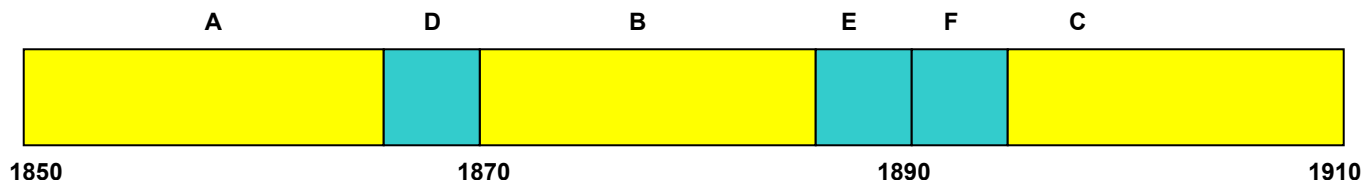
BLOCK 2: 1945 – 1950 MHz (D)

BLOCK 5: 1970 – 1975 MHz (F)

BLOCK 3: 1950 – 1965 MHz (B)

BLOCK 6: 1975 – 1990 MHz (C)

### 3.5 PCS - Mobile Frequency Blocks



BLOCK 1: 1850 – 1865 MHz (A)

BLOCK 4: 1885 – 1890 MHz (E)

BLOCK 2: 1865 – 1870 MHz (D)

BLOCK 5: 1890 – 1895 MHz (F)

BLOCK 3: 1870 – 1885 MHz (B)

BLOCK 6: 1895 – 1910 MHz (C)

### 3.6 Radiated Spurious and Harmonic Emissions

§2.1053, 22.917(a), 24.238(a)

Spurious and harmonic radiated emissions are measured outdoors at our 3-meter test range. The equipment under test is placed on a wooden turntable 3-meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10<sup>th</sup> harmonic. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer reading. This level is recorded. For readings above 1 GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration. This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.

|                                    |                                                                                     |                                                                       |                                                                                       |                                 |
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## 4.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST).

| Manufacturer      | Model        | Description                        | Calibration Date | Cal Interval | Calibration Due | Serial No.  |
|-------------------|--------------|------------------------------------|------------------|--------------|-----------------|-------------|
| -                 | 263-10dB     | (DC-18GHz) 10 dB Attenuator        | N/A              |              | N/A             | N/A         |
| -                 | No.165       | (30MHz - 1000MHz) RG58 Coax Cable  | N/A              |              | N/A             | N/A         |
| -                 | No.166       | (1000-26500MHz) Microwave RF Cable | N/A              |              | N/A             | N/A         |
| -                 | No.167       | (100kHz - 100MHz) RG58 Coax Cable  | N/A              |              | N/A             | N/A         |
| Agilent           | 8903B        | Audio Analyzer                     | 06/01/07         | Annual       | 06/01/08        | 3011A09025  |
| Agilent           | 11713A       | Attenuation/Switch Driver          | 12/13/07         | Annual       | 12/13/08        | 3439A02645  |
| Agilent           | 8449B        | (1-26.5GHz) Pre-Amplifier          | 12/13/07         | Annual       | 12/12/08        | 3008A00985  |
| Agilent           | 8495A        | (0-70dB) DC-4GHz Attenuator        | N/A              |              | N/A             | N/A         |
| Agilent           | 85650A       | Quasi-Peak Adapter                 | 03/13/08         | Annual       | 03/13/09        | 2043A00301  |
| Agilent           | 8566B        | (100Hz-22GHz) Spectrum Analyzer    | 12/13/07         | Annual       | 12/13/08        | 3638A08713  |
| Agilent           | 8566B        | Opt. 462 Impulse Bandwidth         | 01/00/00         | Annual       |                 | 3701A22204  |
| Agilent           | 8591A        | (9kHz-1.8GHz) Spectrum Analyzer    | 09/18/07         | Annual       | 09/18/08        | 3144A02458  |
| Agilent           | 8648D        | (9kHz-4GHz) Signal Generator       | 10/11/07         | Biennial     | 10/10/09        | 3613A00315  |
| Agilent           | 8901A        | Modulation Analyzer                | 06/18/07         | Annual       | 06/18/08        | 2432A03467  |
| Agilent           | E4407B       | ESA Spectrum Analyzer              | 03/13/08         | Annual       | 03/13/09        | US39210313  |
| Agilent           | E4432B       | ESG-D Series Signal Generator      | 08/08/06         | Biennial     | 08/07/08        | US40053896  |
| Agilent           | E4448A       | (3Hz-50GHz) Spectrum Analyzer      | 01/24/08         | Annual       | 01/24/09        | US42510244  |
| Agilent           | E5515C       | Wireless Communications Test Set   | 10/06/06         | Biennial     | 10/05/08        | GB43193872  |
| Agilent           | E5515C       | Wireless Communications Test Set   | 06/08/07         | Biennial     | 06/08/09        | GB46310798  |
| Agilent           | E5515C       | Wireless Communications Test Set   | 08/31/07         | Biennial     | 08/31/09        | GB41450275  |
| Agilent           | E6651A       | Mobile WiMAX Tester                | 08/23/07         | Biennial     | 08/22/09        | MY47310109  |
| Agilent           | E8257D       | (250kHz-20GHz) Signal Generator    | 03/08/07         | Biennial     | 03/08/09        | MY45470194  |
| Compliance Design | Roberts      | Dipole Set                         | 11/09/07         | Biennial     | 11/08/09        | 146         |
| Compliance Design | Roberts      | Dipole Set                         | 11/09/07         | Biennial     | 11/08/09        | 147         |
| Emco              | 3115         | Horn Antenna (1-18GHz)             | 9/24/07          | Biennial     | 9/23/09         | 9704-5182   |
| Emco              | 3115         | Horn Antenna (1-18GHz)             | 10/4/07          | Biennial     | 10/3/09         | 9205-3874   |
| Emco              | 3116         | Horn Antenna (18 - 40GHz)          | 8/25/05          | Triennial    | 8/24/08         | 9203-2178   |
| Emco              | 3121C-DB4    | Dipole Antenna                     | 1/23/07          | Biennial     | 1/22/09         | 00023951    |
| Emco              | 3816/2       | LISN                               | 8/9/06           | Biennial     | 8/8/08          | 9707-1077   |
| Emco              | 3816/2       | LISN                               | 8/9/06           | Biennial     | 8/8/08          | 9707-1079   |
| Gigatronics       | 80701A       | (0.05-18GHz) Power Sensor          | 6/20/07          | Annual       | 6/19/08         | 1833460     |
| Gigatronics       | 8651A        | Universal Power Meter              | 6/19/07          | Annual       | 6/18/08         | 8650319     |
| K & L             | 11SH10       | Band Pass Filter                   | N/A              | Annual       | N/A             | 1300/4000   |
| K & L             | 11SH10       | Band Pass Filter                   | N/A              | Annual       | N/A             | 4000/12000  |
| MiniCircuits      | VHF-1300+    | High Pass Filter                   | N/A              |              | N/A             | 30716       |
| MiniCircuits      | VHF-3100+    | High Pass Filter                   | N/A              |              | N/A             | 30721       |
| Pasternack        | PE2208-6     | Bidirectional Coupler              | N/A              |              | N/A             | N/A         |
| Rohde & Schwarz   | CMU200       | Base Station Simulator             | 5/24/07          | Annual       | 5/23/08         | 836371/0079 |
| Rohde & Schwarz   | CMU200       | Base Station Simulator             | 9/7/07           | Annual       | 9/6/08          | 833855/0010 |
| Rohde & Schwarz   | CMU200       | Base Station Simulator             | 12/6/07          | Annual       | 12/5/08         | 107826      |
| Rohde & Schwarz   | CMU200       | Base Station Simulator             | 12/13/07         | Annual       | 12/13/08        | 109892      |
| Rohde & Schwarz   | NRVD         | Dual Channel Power Meter           | 12/12/06         | Biennial     | 12/11/08        | 101695      |
| Rohde & Schwarz   | NRVS         | Single Channel Power Meter         | 7/3/07           | Biennial     | 7/2/09          | 835360/0079 |
| Rohde & Schwarz   | NRV-Z32      | Peak Power Sensor (100uW-2W)       | 12/21/06         | Biennial     | 12/20/08        | 100155      |
| Rohde & Schwarz   | NRV-Z33      | Peak Power Sensor (1mW-20W)        | 11/28/06         | Biennial     | 11/27/08        | 100004      |
| Rohde & Schwarz   | NRV-Z53      | Power Sensor                       | 7/3/07           | Biennial     | 7/2/09          | 846076/0007 |
| Schwarzbeck       | UHA9105      | Dipole Antenna (400 - 1GHz) Rx     | 6/19/07          | Biennial     | 6/18/09         | 9105-2404   |
| Schwarzbeck       | UHA9105      | Dipole Antenna (400 - 1GHz) Tx     | 6/19/07          | Biennial     | 6/18/09         | 9105-2403   |
| Solar Electronics | 8012-50-R-24 | BNC LISN                           | 11/8/07          | Biennial     | 11/7/09         | 0310233     |
| Sunol             | DRH-118      | Horn Antenna (1 - 18GHz)           | 5/9/07           | Biennial     | 5/8/09          | A050307     |

Table 4-1. Test Equipment

|                                    |                                                                                     |                                                                       |                                                                                       |                                 |
|------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHR210A                |  | FCC Pt. 22/24 CDMA MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0804170509.A3L | Test Dates:<br>April 22, 2008                                                       | EUT Type:<br>Cellular/AWS/PCS CDMA Phone with Bluetooth               |                                                                                       | Page 8 of 19                    |

## 5.0 SAMPLE CALCULATIONS

### Emission Designator

**Emission Designator = 1M25F9W**

CDMA BW = 1.25 MHz

F = Frequency Modulation

9 = Composite Digital Info

W = Combination (Audio/Data) (Measured at the 99.75% power bandwidth)

### Spurious Radiated Emission - PCS Band

**Example: Channel 25 PCS Mode 2<sup>nd</sup> Harmonic (3702.50 MHz)**

The receive analyzer reading at 3 meters with the EUT on the turntable was -81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of -81.0 dBm on the receive analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 3702.50 MHz. So 6.1 dB is added to the signal generator reading of -30.9 dBm yielding -24.80 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm - (-24.80) = 50.3 dBc.

|                                    |                                                                                     |                                                                       |                                                                                       |                                 |
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## 6.0 TEST RESULTS

### 6.1 Summary

Company Name: Samsung Electronics, Co. Ltd.  
 FCC ID: A3LSCHR210A  
 FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)  
 Mode(s): CDMA

| FCC Part Section(s)                    | Test Description                                                                  | Test Limit                                                          | Test Condition                         | Test Result | Reference           |
|----------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------|----------------------------------------|-------------|---------------------|
| TRANSMITTER MODE (TX)                  |                                                                                   |                                                                     |                                        |             |                     |
| 22.913(a)(2)                           | Effective Radiated Power                                                          | < 7 Watts max. ERP                                                  | RADIATED                               | PASS        | Section 6.2         |
| 24.232(c)                              | Equivalent Isotropic Radiated Power                                               | < 2 Watts max. EIRP                                                 |                                        | PASS        | Section 6.3         |
| 2.1053, 22.917(a), 24.238(a)           | Undesirable Emissions                                                             | < 43 + 10log <sub>10</sub> (P[Watts]) for all out-of-band emissions |                                        | PASS        | Sections 6.4, 6.5   |
| RECEIVER MODE (RX) / DIGITAL EMISSIONS |                                                                                   |                                                                     |                                        |             |                     |
| 15.107                                 | AC Conducted Emissions<br>150kHz – 30MHz                                          | < FCC 15.107 limits                                                 | LINE CONDUCTED                         | PASS        | Pt. 15B Test Report |
| 15.109                                 | General Field Strength Limits<br>(Restricted Bands and Radiated Emissions Limits) | < FCC 15.109 limits                                                 | RADIATED<br>(30MHz-1GHz)<br>(1-25 GHz) | PASS        | Pt. 15B Test Report |
| RF EXPOSURE                            |                                                                                   |                                                                     |                                        |             |                     |
| 2.1091 / 2.1093                        | SAR Test                                                                          | 1.6 W/kg (SAR Limit)                                                | SAR                                    | PASS        | SAR Report          |

**Table 6-1. Summary of Test Results**

## 6.2 Effective Radiated Power Output Data

### §22.913(a)(2)

POWER: "All Up" Bits (Cellular CDMA Mode)

| Frequency [MHz] | Measured Level [dBm] | Substitute Level [dBm] | Antenna Gain [dBd] | Pol [H/V] | ERP [dBm] | ERP [Watts] | Battery Type |
|-----------------|----------------------|------------------------|--------------------|-----------|-----------|-------------|--------------|
| 824.70          | -17.100              | 23.49                  | 0.00               | V         | 23.49     | 0.223       | Standard     |
| 836.52          | -18.000              | 22.59                  | 0.00               | V         | 22.59     | 0.182       | Standard     |
| 848.31          | -17.100              | 23.49                  | 0.00               | V         | 23.49     | 0.223       | Standard     |

Table 6-2. Effective Radiated Power Output Data

#### NOTES:

Effective Radiated Power Output Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminals of the dipole is measured. The ERP is recorded.

This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

|                                    |                                                                                     |                                                                       |                                                                                       |                                 |
|------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHR210A                |  | FCC Pt. 22/24 CDMA MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0804170509.A3L | Test Dates:<br>April 22, 2008                                                       | EUT Type:<br>Cellular/AWS/PCS CDMA Phone with Bluetooth               |                                                                                       | Page 11 of 19                   |

### 6.3 Equivalent Isotropic Radiated Power Output Data

§24.232(c)

POWER: "All Up" Bits (PCS CDMA Mode)

| Frequency [MHz] | Measured Level [dBm] | Substitute Level [dBm] | Antenna Gain [dBi] | Pol [H/V] | EIRP [dBm] | EIRP [Watts] | Battery Type |
|-----------------|----------------------|------------------------|--------------------|-----------|------------|--------------|--------------|
| 1851.25         | -19.200              | 16.51                  | 8.00               | H         | 24.51      | 0.282        | Standard     |
| 1880.00         | -18.000              | 17.71                  | 8.00               | H         | 25.71      | 0.372        | Standard     |
| 1908.75         | -18.300              | 17.41                  | 8.00               | H         | 25.41      | 0.348        | Standard     |

Table 6-3. Equivalent Isotropic Radiated Power Output Data

#### NOTES:

Equivalent Isotropic Radiated Power Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A Horn antenna was substituted in place of the EUT. This Horn antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminals of the Horn antenna is measured. The difference between the gain of the horn and an isotropic antenna is taken into consideration and the EIRP is recorded.

This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

|                                    |                                                                                     |                                                                       |                                                                                       |                                 |
|------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
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| Test Report S/N:<br>0804170509.A3L | Test Dates:<br>April 22, 2008                                                       | EUT Type:<br>Cellular/AWS/PCS CDMA Phone with Bluetooth               |                                                                                       | Page 12 of 19                   |

## 6.4 Cellular CDMA Radiated Measurements

§2.1053, 22.917(a)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 824.70 MHz  
 CHANNEL: 1013  
 MEASURED OUTPUT POWER: 23.490 dBm = 0.223 W  
 MODULATION SIGNAL: CDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W)$  : 36.49 dBc

| FREQUENCY (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBd) | CORRECT GENERATOR LEVEL (dBm) | POL (H/V) | (dBc) |
|-----------------|---------------------------------|-------------------------------|-------------------------------|-----------|-------|
| 1649.40         | -52.35                          | 6.08                          | -46.26                        | V         | 69.8  |
| 2474.10         | -73.55                          | 6.08                          | -67.46                        | V         | 91.0  |
| 3298.80         | -88.97                          | 6.53                          | -82.43                        | V         | 105.9 |
| 4123.50         | -94.09                          | 6.87                          | -87.22                        | V         | 110.7 |
| 4948.20         | -91.85                          | 7.21                          | -84.64                        | V         | 108.1 |

Table 6-4. Radiated Spurious Data (Cellular CDMA Mode – Ch. 1013)

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

|                                    |                                                                                     |                                                                       |                                                                                       |                                 |
|------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHR210A                |  | FCC Pt. 22/24 CDMA MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0804170509.A3L | Test Dates:<br>April 22, 2008                                                       | EUT Type:<br>Cellular/AWS/PCS CDMA Phone with Bluetooth               |                                                                                       | Page 13 of 19                   |

## Cellular CDMA Radiated Measurements (Cont'd)

§2.1053, 22.917(a)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 836.52 MHz  
 CHANNEL: 384  
 MEASURED OUTPUT POWER: 23.490 dBm = 0.223 W  
 MODULATION SIGNAL: CDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W)$  : 36.49 dBc

| FREQUENCY (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBd) | CORRECT GENERATOR LEVEL (dBm) | POL (H/V) | (dBc) |
|-----------------|---------------------------------|-------------------------------|-------------------------------|-----------|-------|
| 1673.04         | -51.22                          | 6.09                          | -45.13                        | V         | 68.6  |
| 2509.56         | -66.99                          | 6.55                          | -60.44                        | V         | 83.9  |
| 3346.08         | -85.58                          | 6.89                          | -78.68                        | V         | 102.2 |
| 4182.60         | -92.06                          | 7.43                          | -84.63                        | V         | 108.1 |
| 5019.12         | -90.85                          | 8.35                          | -82.50                        | V         | 106.0 |

Table 6-5. Radiated Spurious Data (Cellular CDMA Mode – Ch. 384)

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

|                                    |                                                                                     |                                                                       |                                                                                       |                                 |
|------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
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| Test Report S/N:<br>0804170509.A3L | Test Dates:<br>April 22, 2008                                                       | EUT Type:<br>Cellular/AWS/PCS CDMA Phone with Bluetooth               |                                                                                       | Page 14 of 19                   |

## Cellular CDMA Radiated Measurements (Cont'd)

§2.1053, 22.917(a)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 848.31 MHz  
 CHANNEL: 777  
 MEASURED OUTPUT POWER: 23.490 dBm = 0.223 W  
 MODULATION SIGNAL: CDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W)$  : 36.49 dBc

| FREQUENCY (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBd) | CORRECT GENERATOR LEVEL (dBm) | POL (H/V) | (dBc) |
|-----------------|---------------------------------|-------------------------------|-------------------------------|-----------|-------|
| 1696.62         | -50.19                          | 6.09                          | -44.10                        | V         | 67.6  |
| 2544.93         | -64.94                          | 6.57                          | -58.37                        | V         | 81.9  |
| 3393.24         | -85.43                          | 6.91                          | -78.52                        | V         | 102.0 |
| 4241.55         | -92.27                          | 7.65                          | -84.62                        | V         | 108.1 |
| 5089.86         | -90.51                          | 8.33                          | -82.18                        | V         | 105.7 |

Table 6-6. Radiated Spurious Data (Cellular CDMA Mode – Ch. 777)

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

|                                    |                                                                                     |                                                                       |                                                                                       |                                 |
|------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHR210A                |  | FCC Pt. 22/24 CDMA MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0804170509.A3L | Test Dates:<br>April 22, 2008                                                       | EUT Type:<br>Cellular/AWS/PCS CDMA Phone with Bluetooth               |                                                                                       | Page 15 of 19                   |

## 6.5 PCS CDMA Radiated Measurements

§2.1053, 24.238(a)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1851.25 MHz  
 CHANNEL: 25  
 MEASURED OUTPUT POWER: 25.710 dBm = 0.372 W  
 MODULATION SIGNAL: CDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W)$  38.71 dBc

| FREQUENCY (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBd) | CORRECT GENERATOR LEVEL (dBm) | POL (H/V) | (dBc) |
|-----------------|---------------------------------|-------------------------------|-------------------------------|-----------|-------|
| 3702.50         | -44.94                          | 9.02                          | -35.92                        | H         | 61.6  |
| 5553.75         | -71.74                          | 10.40                         | -61.34                        | H         | 87.0  |
| 7405.00         | -75.66                          | 10.51                         | -65.15                        | H         | 90.9  |
| 9256.25         | -85.36                          | 11.84                         | -73.52                        | H         | 99.2  |
| 11107.50        | -82.67                          | 12.76                         | -69.91                        | H         | 95.6  |

Table 6-7. Radiated Spurious Data (PCS CDMA Mode – Ch. 25)

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

|                                    |                                                                                     |                                                                       |                                                                                       |                                 |
|------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHR210A                |  | FCC Pt. 22/24 CDMA MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0804170509.A3L | Test Dates:<br>April 22, 2008                                                       | EUT Type:<br>Cellular/AWS/PCS CDMA Phone with Bluetooth               |                                                                                       | Page 16 of 19                   |

## PCS CDMA Radiated Measurements (Cont'd)

§2.1053, 24.238(a)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1880.00 MHz  
 CHANNEL: 600  
 MEASURED OUTPUT POWER: 25.710 dBm = 0.372 W  
 MODULATION SIGNAL: CDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W)$  : 38.71 dBc

| FREQUENCY (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBd) | CORRECT GENERATOR LEVEL (dBm) | POL (H/V) | (dBc) |
|-----------------|---------------------------------|-------------------------------|-------------------------------|-----------|-------|
| 3760.00         | -40.92                          | 8.99                          | -31.93                        | H         | 57.6  |
| 5640.00         | -68.51                          | 10.40                         | -58.11                        | H         | 83.8  |
| 7520.00         | -75.60                          | 10.62                         | -64.98                        | H         | 90.7  |
| 9400.00         | -85.14                          | 11.70                         | -73.44                        | H         | 99.2  |
| 11280.00        | -81.91                          | 12.69                         | -69.23                        | H         | 94.9  |

Table 6-8. Radiated Spurious Data (PCS CDMA Mode – Ch. 600)

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

|                                    |                                                                                     |                                                                       |                                                                                       |                                 |
|------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
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| Test Report S/N:<br>0804170509.A3L | Test Dates:<br>April 22, 2008                                                       | EUT Type:<br>Cellular/AWS/PCS CDMA Phone with Bluetooth               |                                                                                       | Page 17 of 19                   |

## PCS CDMA Radiated Measurements (Cont'd)

§2.1053, 24.238(a)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1908.75 MHz  
 CHANNEL: 1175  
 MEASURED OUTPUT POWER: 25.710 dBm = 0.372 W  
 MODULATION SIGNAL: CDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W)$  : 38.71 dBc

| FREQUENCY (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBd) | CORRECT GENERATOR LEVEL (dBm) | POL (H/V) | (dBc) |
|-----------------|---------------------------------|-------------------------------|-------------------------------|-----------|-------|
| 3817.50         | -34.96                          | 8.97                          | -25.99                        | H         | 51.7  |
| 5726.25         | -62.68                          | 10.40                         | -52.28                        | H         | 78.0  |
| 7635.00         | -75.33                          | 10.71                         | -64.62                        | H         | 90.3  |
| 9543.75         | -84.95                          | 11.64                         | -73.31                        | H         | 99.0  |
| 11452.50        | -81.17                          | 12.62                         | -68.55                        | H         | 94.3  |

**Table 6-9. Radiated Spurious Data (PCS CDMA Mode – Ch. 1175)**

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

|                                    |                                                                                     |                                                                       |                                                                                       |                                 |
|------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSCHR210A                |  | FCC Pt. 22/24 CDMA MEASUREMENT REPORT<br>(CLASS II PERMISSIVE CHANGE) |  | Reviewed by:<br>Quality Manager |
| Test Report S/N:<br>0804170509.A3L | Test Dates:<br>April 22, 2008                                                       | EUT Type:<br>Cellular/AWS/PCS CDMA Phone with Bluetooth               |                                                                                       | Page 18 of 19                   |

## 7.0 CONCLUSION

The data collected show that the **Samsung Cellular/AWS/PCS CDMA Phone with Bluetooth FCC ID: A3LSCHR210A** complies with all the requirements of Parts 2, 22, and 24 of the FCC rules.

|                                           |                                                                                     |                                                                               |                                                                                       |                                        |
|-------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------|
| <b>FCC ID:</b> A3LSCHR210A                |  | <b>FCC Pt. 22/24 CDMA MEASUREMENT REPORT<br/>(CLASS II PERMISSIVE CHANGE)</b> |  | <b>Reviewed by:</b><br>Quality Manager |
| <b>Test Report S/N:</b><br>0804170509.A3L | <b>Test Dates:</b><br>April 22, 2008                                                | <b>EUT Type:</b><br>Cellular/AWS/PCS CDMA Phone with Bluetooth                |                                                                                       | Page 19 of 19                          |